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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

26 FEDERAL PLAZA

NEW YORK. NEW YORK 10278

AUG 9 1988

SCIENTIFIC CHEM PROC C/O DON RINALDI ESQ
DEROSE & RINALDI 89 FRANKLIN A
NUTLEY NJ 07110

RE: Kin-Buc Landfill Superfund Site Remedial Design/Action

Dear Sir/Madam:

Previous EPA correspondence has informed your company and/or client as to its status as a potential responsible party under the Comprehensive Environmental Responsibility, Compensation and Liability Act 42 U.S.C. Section 7601 et seq. with respect to the Kin-Buc Landfill hazardous waste site located in Edison Township, New Jersey. Enclosed you will find a copy of the Proposed Remedial Action Plan (PRAP) for the Kin-Buc Landfill-Operable Unit I hazardous waste site.

The PRAP summarizes the results of investigatory work conducted at the site, the remedial alternatives evaluated to clean up the site and EPA's proposed preferred remedy for this phase of work. Due to the magnitude and complexity of the problems at the site, clean up will proceed in discrete phases, also known as operable units. Thus, the PRAP deals with Operable Unit I, which pertains to controlling the sources of contamination at the site. Operable Unit II investigatory work, which will address management of migration of contamination is expected to commence in the Fall 1988.

The PRAP is provided for your information and review. Please feel free to contact me by phone at (212) 264-8678 or in writing at the following address: Perry Katz, USEPA Region II, Emergency and Remedial Response Division, 26 Federal Plaza-Rm. 737, New York, New York, 10278 if you have any questions or comments. All comments should be provided later than August 24, 1988. Please disregard the August 18, 1988 deadline in the PRAP.

Your questions/comments are encouraged. Thank you for your attention to this matter.

Very truly yours,

Perry Katz
Site Compliance Branch

# PROPOSED REMEDIAL ACTION PLAN
# KIN-BUC LANDFILL SITE - OPERABLE UNIT I
# EDISON TOWNSHIP, NEW JERSEY
# JULY 1988

## PURPOSE OF THE PROPOSED PLAN

The U.S. Environmental Protection Agency (EPA) has recently completed review of a draft Remedial Investigation/Feasibility Study (RI/FS) conducted by the owners/operators of the Kin-Buc Landfill site under an Amended Administrative Order issued in March 1986. The RI describes the nature and extent of contamination at the site. This document, prepared by EPA, describes the proposed remedial action plan, which uses the RI/FS to identify the EPA's preferred alternative for remediation of the site.

## COMMUNITY ROLE IN THE REMEDY SELECTION PROCESS

EPA relies on public input to ensure that the remedy selected for each Superfund site is fully understood and considers concerns of the local community, as well as being an effective solution. This proposed remedial action plan, the RI and FS, are now available for public review and comment in order to aid EPA in determining the most acceptable alternative for the cleanup of the Kin-Buc Landfill. Detailed information on any of the material presented in the proposed remedial action plan can be found in the RI and FS. The RI/FS and other information used in the remedy selection process are part of the administrative record for the site. The administrative record has been established at the Edison Township Public Library - Main Branch, located at 340 Plainfield Avenue in Edison.

Written comments on the RI/FS and the proposed remedial action plan can be submitted through August 18th to:

Perry Katz
Project Manager
U.S. Environmental Protection Agency
Emergency and Remedial Response Division
26 Federal Plaza - Room 737
New York, New York 10278

All public comments will be documented in the Responsiveness Summary Section of the subsequent Record of Decision (ROD), the formal document for the selected remedy. It is important to note that the alternative described as "preferred" does not necessarily represent the final selection. The final selection of the alternative that addresses cleanup of the site will be documented in the ROD only after consideration of all public comments on the RI/FS and proposed remedial action plan. In addition, a public meeting will be held at Edison Township Municipal Building located at 100 Municipal Boulevard in Edison on August 4th at 7:30 pm so

EPA can present the findings of the RI/FS and address questions concerning the proposed remedy.

**SITE BACKGROUND**

The Kin-Buc Landfill is an inactive, 220-acre site located at the end of Meadow Road in Edison Township, Middlesex County, New Jersey (see Figure 1). Operations at the site occurred as early as 1947. Kin-Buc, Inc. operated the site as a landfill from approximately 1968 to July 1976. From 1971 to 1976, the site was a state-approved landfill for industrial (solid and liquid) and municipal wastes. During this period, the site accepted hazardous waste. EPA investigation of the site began in January 1976 at the time of an oil spill at the facility. Unpermitted point source discharges were noted by EPA site investigators, leading to a full scale monitoring investigation, which revealed the discharge of hazardous substances from the facility. In July 1976, the New Jersey Department of Environmental Protection (NJDEP) revoked Kin-Buc Inc.'s permit to operate due to violations of numerous environmental statutes.

The Kin-Buc Landfill site consists of two major mounds and one minor mound. The larger of the two major mounds, designated Kin-Buc I, covers approximately 30 acres and rises to a maximum elevation of 93 feet. The other major mound, designated Kin-Buc II covers approximately 12 acres, rises to a maximum elevation of 51 feet and is located just north of Kin-Buc I. The low lying minor mound covers approximately 9 acres, rises 15 to 20 feet high and is designated as Mound B. Mound B lies west-southwest of Kin-Buc I, across the Edison Township Municipal Landfill access road and adjacent to the Raritan River. Three pits of black, oily leachate have developed at the southeastern edge of Kin-Buc I and are known as Pits A, B, and C. Adjacent to the pits is an area of impounded, tidally affected water referred to as Pool C. A fenced storage area currently utilized as part of an on-going removal action is next to Pool C. Marsh land to the east of Pool C is cut by numerous mosquito drainage channels, with its major drainage feature being Edmonds Creek, a tidally affected shallow stream that flows into the Raritan River to the south of Kin-Buc I. Pool C is connected to Edmonds Creek by a small channel. Mill Brook, located northwest of the site, flows into Martins Creek, which has been partially filled in by Kin-Buc II. Flowing west, Martins Creek runs into the Raritan River just north of Mound B (see Figure 2).

Negotiations with the owners/operators of the site commenced in mid-1976 and culminated in the filing of a civil complaint against 11 owners/operators in early 1979 directing the defendants to take corrective action at the site. Partial compliance with the complaint was achieved in January 1980 by placing a synthetic membrane and clay cap on Kin-Buc I. However, measures to mitigate releases of hazardous substances were not taken. EPA began removal action activities in February 1980. EPA's removal action activities consisted of the collection, treatment, and disposal of

oily and aqueous phase leachate from Pool C. As part of continued settlement negotiations, the owners/operators assumed removal action activities in September 1982.

In October 1981, the site was placed on EPA's National Priorities List.

EPA attempted negotiations with Kin-Buc, Inc. based on a proposed Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") §106 consent order. Negotiations were unsuccessful and led to issuance of a unilateral CERCLA §106 Administrative Order (AO) in September 1983 against the 11 initial defendants of the 1979 civil action. The major requirements of this §106 AO included the following:

- The completion of a Removal Action, which was ongoing, that included:

  a) drum removal
  b) oily phase leachate collection
  c) aqueous phase leachate collection

- The conduct of an RI/FS

- The implementation of the selected Remedial Action

- The Operation and Maintenance of the remedy.

In March 1986, an amended unilateral CERCLA §106 AO was issued. The purpose of this AO was to require the owners/operators to follow EPA guidance for the conduct of the RI/FS.

During the course of Removal Action activities (from 1980 to the present), approximately 4000 fifty-five gallon drums containing oily and aqueous phases of leachate and contaminated solids were shipped off-site for incineration as of June 1984; approximately 1.4 million gallons of aqueous phase leachate have been shipped off-site for treatment and disposal from June 1984 through December 1987; and approximately 26,000 gallons of oily phase leachate have been shipped off-site for incineration as of December 1987. Currently, aqueous phase leachate is shipped off-site for treatment twice a week. Oily phase leachate is stored on-site (currently less than 1000 gallons) and periodically shipped off-site for incineration.

**REMEDIAL INVESTIGATION**

A series of field investigations, referred to as the Remedial Investigation (RI), were completed in April 1988. The purpose of the RI was to determine the nature and extent of contamination in the groundwater, surface water, sediment, and air.

As is the case with many Superfund sites, the contamination at the Kin-Buc Landfill site is complex and extensive. The complexity of

such a situation necessitates addressing the contamination in discrete phases, referred to as operable units. In December 1987, EPA determined that the site should be remediated in operable units. Operable Unit I is the primary subject of the RI and consists of the following components:

- Kin-Buc I
- Kin-Buc II
- Pool C
- Low-lying area between Kin-Buc I and the Edison Landfill.

The remediation of this operable unit would constitute source control measures (including capping, containment, collection, and treatment for the site.

The components of Operable Unit II consist of:

- Mound B
- Mill Brook
- Raritan River
- Edmonds Creek including the connecting channel from Pool C
- Adjacent wetlands
- Groundwater contamination emanating from the site.

Operable Unit II will address the management of migration measures that may be necessary at the site. EPA has determined that a Supplemental Remedial Investigation will be required to characterize adequately the nature and extent of any contamination from the components of Operable Unit II. In addition, field data will be gathered where necessary during the Supplemental Remedial Investigation to fill data gaps that need to be resolved prior to design and implementation of the proposed Operable Unit I remedial action.

Findings and conclusions of the RI for Operable Unit I are as follows:

1) The large volume of wastes contained in the Kin-Buc I and II mounds is the source of contamination of the immediately surrounding environment. These wastes included hazardous waste liquids added to municipal and other wastes, with the intent that the liquids would be largely absorbed into the solid waste.

2) Precipitation infiltration into the refuse appears to be most significant in the lowland refuse-filled marsh area between Kin-Buc I and the Edison Landfill. A low permeability cap over Kin-Buc I and low permeability cover materials over Kin-Buc II provide reduced precipitation infiltration in these areas.

3) Radial subsurface flow patterns in the Kin-Buc I and II mounds have been identified. Overall, subsurface flow in a predominantly southerly direction to the refuse-

filled, low-lying areas immediately south of Kin-Buc I, and to major discharge points in the area including Mill Brook, the marsh and the Raritan River.

4) Oily phase leachate contaminated with polychlorinated biphenyls (PCBs) has migrated from Kin-Buc I into the refuse in the low-lying area between Kin-Buc I and the Edison Landfill. Flow patterns indicate the potential for the continued migration of this leachate toward the marsh area to the east, and to the Raritan River to the west of the site.

5) The most significant and obvious manifestations of the subsurface flow and a primary pathway for contaminant migration are the leachate seeps which occurred in a substantial area south of Kin-Buc I (as discussed in #4 above) as well as Pool C.

6) Pool C is the source of PCB contamination (up to 68 ppm) found in the sediments of Edmonds Creek (an Operable Unit II component). The primary source of contamination in Pool C is Kin-Buc I.

7) Leachate generated by the site can be separated into two phases: an oily phase (non-aqueous phase) and an aqueous phase leachate. Sampling and analysis of these two phases of leachate indicate that the oily phase leachate is contaminated with PCBs (up to 5822 ppm) and the aqueous phase leachate contains hazardous substances including, but not limited to, metals, volatile organics, base neutral compounds, acid extractable compounds, PCBs, pesticides, and cyanide. Sampling and analysis of raw leachate (prior to separation) and liquids from Pits B and C and Pool C show the same types of hazardous substances.

8) There are five stratigraphic units of concern at the site. First is the solid waste/fill material (refuse layer) of the landfill itself (primarily Kin-Buc I). Second is the meadow marsh mat which immediately underlies the southern two-thirds of Kin-Buc I. Third, the sand and gravel layer that lies under the meadow marsh mat, begins at the northern edge of Kin-Buc I and thickens to approximately 20 feet at the southern edge of the landfill. Finally, fourth and fifth, are two bedrock formations that lie below the sand and gravel layer. The Brunswick formation, which immediately underlies the sand and gravel formation, begins north of Kin-Buc II until pinching out near the southern edge of Kin-Buc I. The Lockatong formation underlies the Brunswick formation and also begins north of Kin-Buc II until the Brunswick formation pinches out, south of Kin-Buc I; after that, the Lockatong formation immediately underlies the sand and gravel layer (see Figure 3).

Only the sand and gravel and the bedrock formations are considered aquifers.

9) With respect to the refuse layer of the landfill; two entire well series and a single well from a third series have been installed to investigate the nature of contamination within this material. In 1981, Fred C. Hart & Associates installed 14 wells (FCHA series) under contract to EPA; 10 of these were screened in the refuse layer. Limited analysis of hydrocarbon material found in 6 of the 10 wells revealed the presence of PCBs ranging in concentration from 111~4478 ppm. The "A" series well, installed by AGES for the owner/operators are also screened in the refuse layer. Analytic data revealed concentrations of PCBs in these wells ranging from 93 to 5791 ppm. Finally, Well GEI-6G of the GEI series, installed by GeoEngineering, Inc. for the owner/operators and screened in the refuse layer was sampled for parameters other than PCBs. Analytic data revealed concentrations of volatile organics ranging from 10 to 100 ppb and concentrations of heavy metals ranging from 10 to 210 ppb.

10) Wells screened in the sand and gravel aquifer include the entire KINWT series, NJDEP-5 and NJDEP-6 and the remaining wells in the GEI series (see Table 1-2). Contaminant concentration ranges developed from 84 samples taken between 1976 - 1984 reveal the following:

- o presence of heavy metals including, but not limited to lead (up to 2.7 ppm), chromium (up to 0.64 ppm) and zinc (up to 137 ppm)

- o presence of 39 organic priority pollutants including, but not limited to benzene, chlorobenzene, 4-methyl-2-pentanone, phenol and toluene, which were detected at concentrations greater than 10 ppm and compounds such as vinyl chloride (up to 190 ppb), tetrachloroethene (up to 1.8 ppm), and 1,2-transdichloroethene (up to 5.4 ppm)

- o concentrations of chloride (60.5 to 4670 ppm; mean concentrations = 1838 ppm) and total dissolved solids (140 to 10,360 ppm; mean concentration = 4928 ppm), due at least in part to the brackish nature of the water.

11) A limited number of wells have been screened in the bedrock aquifer. Comparison of wells considered upgradient (MW-1 and MW-2, which are north of Kin-Buc II) versus downgradient (MW-3, MW-4, MW-5, GEI-9R, and GEI-12WR) indicate the following:

- o presence of heavy metals at approximately the same mean concentrations in upgradient and downgradient wells

- o an increase in the number and frequency of organic priority pollutants detected -- two contaminants in upgradient wells versus nine contaminants in downgradient wells.

However, the nature and extent of bedrock aquifer contamination is not considered to be adequately characterized based on the data gathered to date. The nature and extent of groundwater contamination in this aquifer is a component of Operable Unit II and will be addressed as part of the Supplemental Remedial Investigation.

12) The only significant source of air contamination is in the immediate vicinity of the Pool C area.

13) Data obtained from sampling surface water and sediment are presented in the RI. However, these surface waters (Raritan River, Mill Brook, and Edmonds Creek), their sediments, and adjacent wetlands have not been fully addressed and will be the subject of more extensive study as part of a Supplemental Remedial Investigation for Operable Unit II.

Further details of the RI can be found in the draft RI Report, and an EPA addendum to the draft RI, copies of which are available at the information repository located at the Edison Township Public Library - Main Branch at 340 Plainfield Avenue in Edison.

**FEASIBILITY STUDY**

The information presented in the RI was used to conduct a Feasibility Study (FS). The FS provides a detailed evaluation of various options, referred to as remedial alternatives, to clean up the site. Remedial alternatives were evaluated based on the following:

- their ability to be implemented

- their ability to protect public health and the environment

- their cost.

Detailed descriptions of the remedial alternatives can be found in the draft FS report and an EPA addendum to the draft FS available at the information repository.

## PROPOSED REMEDIAL ACTION PLAN

Based on the results of the draft RI and FS reports, EPA has prepared this proposed remedial action plan for the Kin-Buc Landfill site. The proposed plan presents a brief summary of the remedial alternative preferred by EPA, and provides the basis for its preference.

The remedial alternatives, as summarized in this proposed plan, are presented below. The costs for implementing each alternative represent present-worth costs and include the cost of a monitoring and re-evaluation program.

## SUMMARIES OF REMEDIAL ALTERNATIVES

The Superfund Law requires that each site remedy selected must be protective of human health and the environment, cost-effective, and in accordance with statutory requirements. Permanent solutions to toxic waste contamination are to be achieved wherever possible. Treatment of waste on-site and application of innovative technologies are to be employed to the maximum extent practicable.

A wide range of technologies were screened for incorporation into one or more of the alternatives developed. The letters assigned to the alternatives in the following discussion match those used in the draft FS report.

Alternative A - No Further Action With Monitoring.

The no further action with monitoring alternative involves continued performance of existing site mitigative measures and monitoring activities including the cap/cover materials over the Kin-Buc I and Kin-Buc II mounds, the collection of aqueous phase and oily phase leachate in the Pool C vicinity for off-site treatment and disposal, groundwater and air monitoring and general site maintenance. This alternative would neither control all releases from the site nor mitigate potential risks to public health and the environment. Long-term monitoring would evaluate any changes in contaminant concentrations over time and aid in detecting impending health risks or environmental impacts. The cost of this alternative is approximately $4,075,000.

Alternatives C3a-d -- slurry wall installation to bedrock in the northern portion of the site and to the meadow marsh mat in the southern portion of the site, collection of oily phase leachate for off-site incineration, collection and treatment of aqueous phase leachate, capping, periodic monitoring.

Alternative C3a, which includes the slurry wall, a collection system, off-site incineration of oily-phase leachate combined with on-site aqueous phase leachate pre-treatment with discharge to the Middlesex County Utilities Authority (MCUA) publicly owned treatment works (POTW), and extension of the existing Kin-Buc I

cap design to Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill, and Pool C, is estimated to cost $11,914,000.

Alternative C3b, which includes the slurry wall, a collection system, off-site incineration of oily phase leachate combined with on-site aqueous phase leachate treatment with direct surface water discharge and extension of the existing Kin-Buc I cap design to Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill, and Pool C, is estimated to cost (depending on the type of on-site aqueous phase leachate treatment) $12,687,000 for anaerobic/aerobic on-site aqueous phase leachate treatment or $13,038,000 for powdered activated carbon on-site aqueous phase leachate treatment.

Alternative C3c includes the slurry wall, a collection system, off-site incineration of oily phase leachate combined with on-site aqueous phase leachate pre-treatment with discharge to the MCUA and the existing cap design to Kin-Buc I as well as RCRA cap design on Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill, and Pool C. The estimated cost of this alternative is $14,380,000.

Alternative C3d includes the slurry wall, a collection system, off-site incineration of oily phase leachate combined with on-site aqueous phase leachate treatment with direct surface water discharge and the existing cap design Kin-Buc I as well as a RCRA cap design on Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill and Pool C. The estimated costs for this alternative are $15,479,000 utilizing anaerobic/aerobic on-site aqueous phase leachate treatment and $15,136,000 utilizing powdered activated carbon treatment for on-site aqueous phase leachate.

Alternatives C3a-d contain, collect, and treat oily and aqueous phase leachate in the highly contaminated refuse layer. However, releases from the refuse layer to the underlying sand and gravel aquifer (and potentially to the bedrock aquifer) would not be controlled, because the slurry wall would be installed to the meadow marsh mat in southern portion of the site.

Therefore, potential risks to public health and the environment posed by the continued uncontrolled release of oily and aqueous phase leachate containing hazardous substances from the refuse layer to the underlying sand and gravel (and potentially the bedrock aquifer) are not mitigated.

Alternatives C4a-d -- slurry wall installation to bedrock on all sides, collection of oily-phase leachate for off-site incineration, collection and treatment of aqueous-phase leachate and groundwater, capping, periodic monitoring.

Alternatives C4a-d are similar to Alternatives C3a-d, with two important exceptions. First, the slurry wall for Alternatives

C4a-d would be installed to bedrock on all sides. Installation of the slurry wall to bedrock on all sides prevents the release of contaminants from the sand and gravel aquifer into the bedrock aquifer and controls the migration of contaminants through the sand and gravel aquifer into the surrounding environment.

The second important difference between Alternatives C4a-d and Alternatives C3a-d is that Alternative C4 collects and treats contaminated groundwater from the sand and gravel aquifer as well as leachate from the refuse layer.

Alternative C4a includes a slurry wall installed to bedrock on all sides, a collection system, off-site incineration of oily-phase leachate combined with on-site aqueous phase leachate and contaminated groundwater pretreatment with discharge to the MCUA and extension of the existing Kin-Buc I cap design to Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill, and Pool C. The estimated cost of this alternative is $12,779,000.

Alternative C4b includes the slurry wall installed to bedrock on all sides, a collection system, off-site incineration of oily-phase leachate combined with on-site aqueous phase leachate and contaminated groundwater treatment with direct surface water discharge and extension of existing Kin-Buc I cap design to Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill, and Pool C at an estimated cost of (depending on the type of on-site aqueous treatment employed) $13,778,000 for anaerobic/aerobic on-site aqueous treatment or $13,457,000 for powdered activated carbon on-site aqueous treatment.

Alternative C4c includes the slurry wall installed to bedrock on all sides, a collection system, off-site aqueous phase leachate and contaminated groundwater pre-treatment with discharge to the MCUA and the existing cap design on Kin-Buc I as well as a RCRA cap design on Kin-Buc II portions of the low-lying area between Kin-Buc I and the Edison Landfill. The estimated cost of this alternative is $15,245,000.

Alternative C4d includes the slurry wall installed to bedrock on all sides, a collection system, off-site incineration of oily-phase leachate combined with on-site aqueous phase leachate and contaminated groundwater treatment with direct surface water discharge and the existing cap design on Kin-Buc I as well as a RCRA cap design on Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill, and Pool C. The estimated costs for this alternative are $16,242,000 utilizing anaerobic/aerobic on-site treatment or $15,882,000 utilizing powdered activated carbon on-site aqueous treatment.

Alternatives C4a-d would effectively contain, collect, and treat oily and aqueous phase leachate in the highly contaminated refuse layer. In addition, installation of the slurry wall to bedrock on all sides provides for containment, collection, and treatment of

contaminants in the sand and gravel aquifer thereby removing the potential for continued uncontrolled releases of contaminants to both the bedrock aquifer and the surrounding environment, including adjacent surface waters.

Alternatives C4c and C4d provide for a RCRA cap design (versus extension of the existing Kin-Buc I cap design) on Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill and Pool C in accordance with the requirements of RCRA.

Alternative D -- Complete Waste Excavation for Off-Site Incineration

Alternative D involves the complete excavation and removal for off-site incineration of the source of contamination represented by Kin-Buc I, Kin-Buc II, Pool C, and the contaminated portion of the low-lying area between Kin-Buc I and the Edison Landfill. Clean soil backfill, revegetation and drainage controls would also be utilized, once sampling was conducted to verify that no residual contamination is present. Implementation of this alternative would result in complete restoration of the components in Operable Unit I. Although there are significant short-term risks to workers at the site and residents in close proximity to the site during implementation of this alternative, the long-term risk to public health and the environment would be mitigated since the source of contamination would be removed. The estimated cost of this alternative is $4,001,938,000.

**PREFERRED ALTERNATIVE - RATIONALE FOR SELECTION**

After careful consideration of all reasonable alternatives, EPA recommends Alternative C4d as the preliminary choice for the remediation of Kin-Buc Landfill-Operable Unit I. This alternative will provide protection of public health, welfare, and the environment by permanently reducing the volume, mobility, and toxicity of contaminants at the site. Implementation of this alternative constitutes source control for the components of Operable Unit I. The preferred remedy is composed of the following:

- slurry wall installation to bedrock on all sides of the site
- a collection system for oily-phase leachate, aqueous phase leachate and contaminated groundwater
- off-site incineration of oily-phase leachate
- maintaining (and upgrading if necessary) the existing cap design on Kin-Buc I and installing a RCRA cap design on Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill, and Pool C

- on-site aqueous phase leachate and contaminated groundwater treatment with direct surface water discharge

- periodic monitoring.

Alternatively, the C4c alternative, which is the same as C4d except for on-site aqueous phase leachate and contaminated groundwater pre-treatment with discharge to the MCUA is an acceptable and preferable remedy which can be implemented if approval to discharge is obtained from the MCUA.

The other alternatives evaluated were eliminated based on the criteria used, which fall into four general categories: public/environmental health concerns, compliance with cleanup standards, technical performance, and cost. The eliminated alternatives and the rationale for their elimination are as follows:

Alternative A - No Further Action With Monitoring

This alternative was eliminated since no further action would allow for the continued uncontrolled release of hazardous substances into the environment, would not mitigate the potential public health and environmental risks posed by the site and would not provide adequate removal of the source of contamination.

Alternatives C3a-d -- slurry wall installation to bedrock in the northern portion of the site and to the meadow marsh mat in the southern portion of the site, collection of oily-phase leachate for off-site incineration, collection and treatment of aqueous phase leachate, capping, periodic monitoring.

These alternatives were eliminated because slurry wall installation to the meadow marsh mat in the southern portion of the site would not provide adequate source control. Contaminants would continue to be released to the sand and gravel aquifer, which would not be collected or treated as part of these alternatives. The potential for downward migration of contaminants into the bedrock aquifer and lateral migration of contaminants into the surrounding environment, including adjacent surface waters, would not be controlled. Additionally, Alternatives C3a and C3b do not provide for a cap design on Kin-Buc II, Pool C and the low-lying area between Kin-Buc I and the Edison Landfill which would be in compliance with RCRA standards.

Therefore, uncontrolled releases of hazardous substances into the environment would occur, compliance with regulatory standards would not be achieved, and the potential public health and environmental risks posed by the site may not be adequately mitigated.

Alternative C4a and C4b - slurry wall installation to bedrock on all sides, collection of oily-phase leachate for off-site incineration, collection and treatment of aqueous-phase leachate

and groundwater, existing cap design on Kin-Buc I extended to Kin-Buc II, portions of the low-lying area between Kin-Buc I and the Edison Landfill and Pool C, periodic monitoring.

These two alternatives were eliminated, because the cap design would not be in compliance with existing RCRA cap design standards.

Alternative D - Complete Waste Excavation for Off-Site Incineration

This alternative was eliminated because of the significant short-term risks posed to workers who would be remediating the site and nearby residents during implementation of this alternative. In addition, there are substantial technical complexities (e.g. on-site space constraints) associated with a waste excavation of this magnitude.

If a single incinerator was capable or dedicating itself to the destruction of Kin-Buc wastes (unlikely), there does not appear to be an incinerator in the country that is large enough to handle the disposal of wastes from Kin-Buc within a reasonable time period. If the largest incinerator were capable of dedicating itself to Kin-Buc, it is estimated that may take at least 35 years to complete incineration at the site.

Even if the public health/environment and technical concerns could be adequately addressed implementation of this remedy at a cost of over four billion dollars would not be considered cost-effective.

Therefore, based on an evaluation of all practicable available alternatives, EPA has concluded that Alternative C4d (or Alternative C4c if discharge to the MCUA is approved) represents the preferred alternative since it best addresses public health/environmental concerns, compliance with cleanup standards, technical performance and cost-effectiveness.

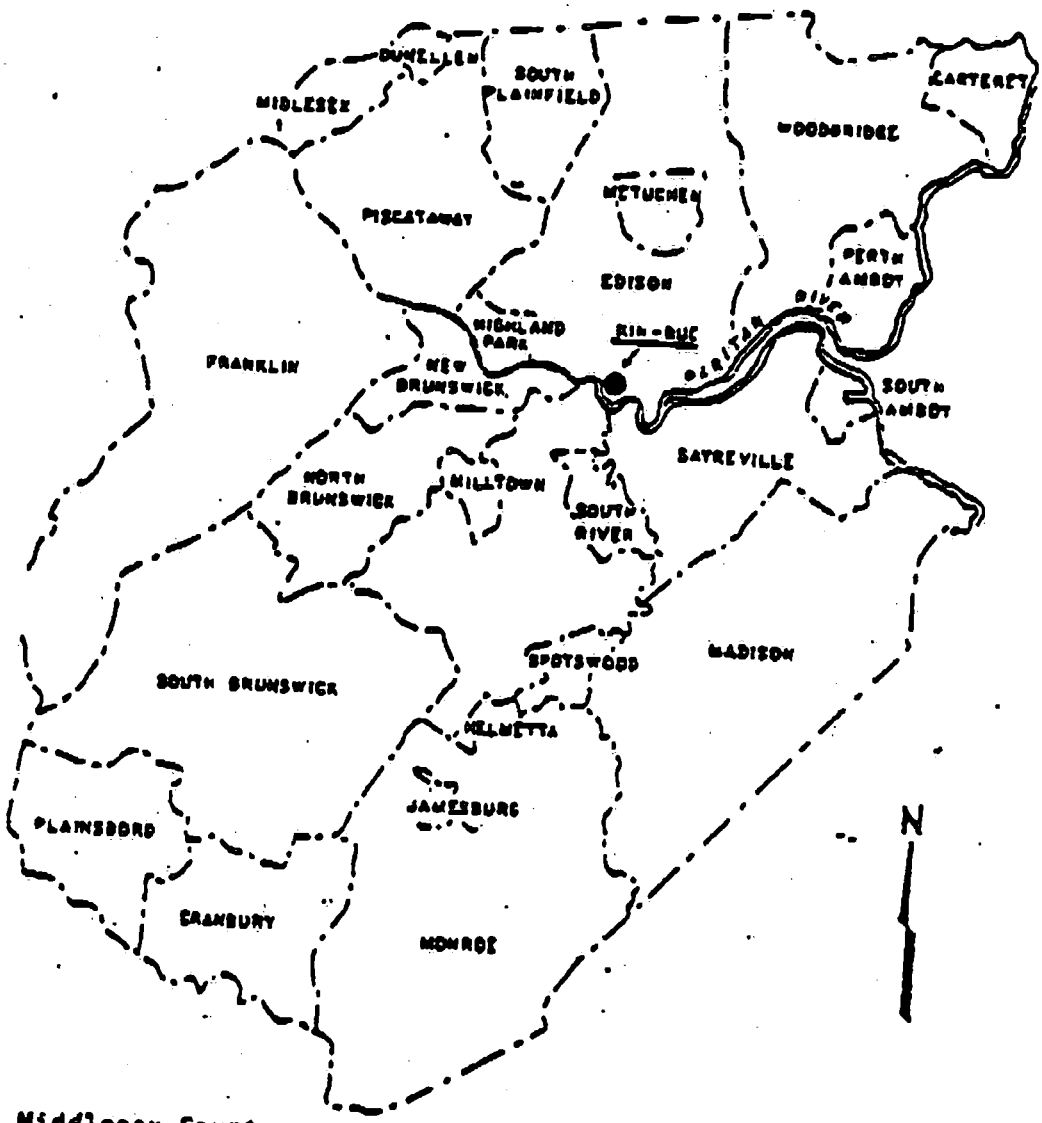
**FUTURE PLANS**

As the magnitude and complexity of the site became apparent, EPA recognized the need to address the site in discrete phases or operable units. The proposed remedial action plan for Kin-Buc Landfill-Operable Unit I constitutes source control and removal measures for the site. A Record of Decision (ROD) is scheduled to be signed during the late summer of 1988. The chosen remedial action for Operable Unit I will then be designed and implemented by either the owners/operators of Kin-Buc Landfill or the EPA with public funds. The owners/operators of Kin-Buc Landfill are ultimately liable for all costs expended by EPA in either performing work or overseeing their work.

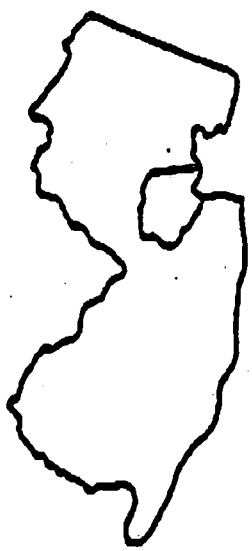
A Supplemental Remedial Investigation is expected to be initiated in the Fall of 1988. The Supplemental Remedial Investigation will involve the components of Operable Unit II. Upon completion of

this investigatory work; alternatives will be evaluated to address Operable Unit II and culminate in the selection of a remedy for Operable Unit II. Remedial action for Operable Unit I (source control measures) and Operable Unit II (management of migration measures) would constitute total remediation of the site. As work is conducted at this site, the public will continue to have opportunities to provide input and express their concerns.

Figure 1 Kin-Buc Landfill Site Location Map,
Edison Township, Middlesex County, New Jersey

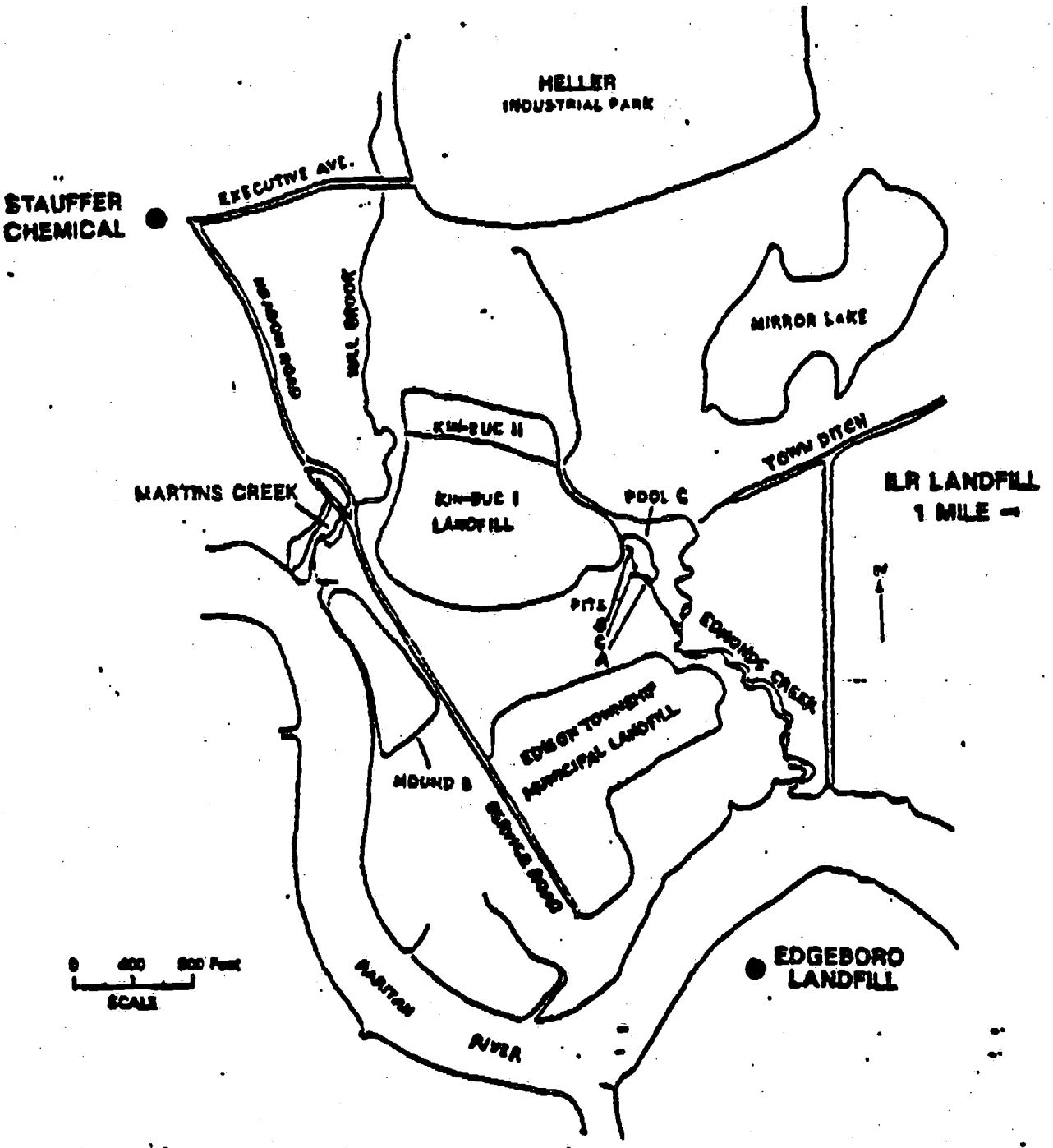



Middlesex County



State of New Jersey

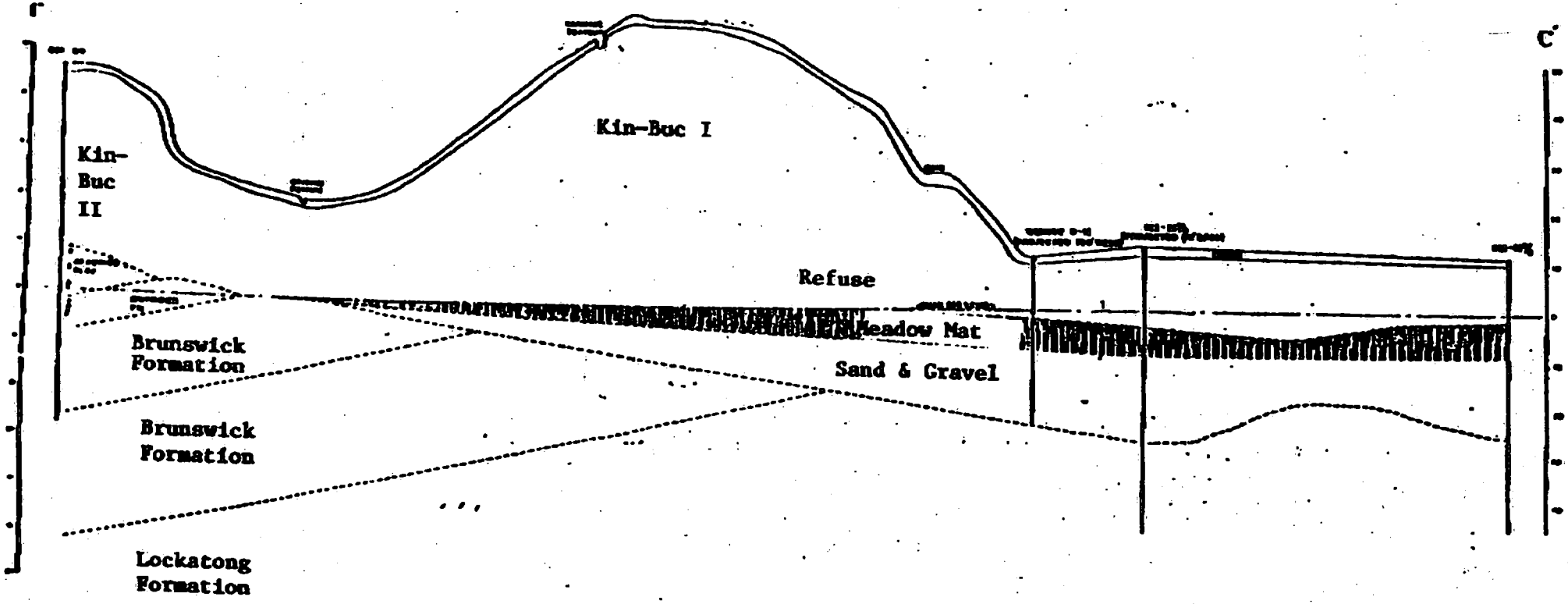
Figure 2 Kin-Buc Landfill Site Map




Note: Adapted from GCA Corporation, 1981, Information Evaluation for the Kin-Buc Landfill, Edison, New Jersey.

Figure 3

Geological Section C-C at Kin- Buc Landfill




Note: Reproduced from GeoEngineering, Inc., 1984, Report of Site Investigation Kin-Buc Landfill.

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DERUSE & RINALDI 89 FRANKLIN
NUTLEY NJ 07110

4. Article Number
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9-6

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FINAL NOTICE
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SEP 2 1988
RETURN
Detached from PS Form 3849—A Oct. 1980

SENDER

SCIENTIFIC CHEM PROC C/O DON RINALDI ESQ
DEROSE & RINALDI 89 FRANKLIN A
NUTLEY NJ 07110

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